

REMARKS

Claims 1-21 were pending in the application. Claim 1 has been amended. Claim 6 has been cancelled. Claims 1-5 and 7-21 remain pending in the application.

35 U.S.C. § 103(a) Rejection:

Claims 1-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Admitted Prior Art (APA) in view of U.S. Patent 6,850,554. Applicant respectfully traverses this rejection.

The prior art references, taken singly or in combination, teach away from the independent claims, and away from the proposed combination with each other. Furthermore, the proposed combination would render APA unsatisfactory for its intended purpose. APA teaches redundant clocking for a computer system using a primary clock board and one or more secondary clock boards. Sha teaches a “[a] circuit and method for controlling a spread spectrum transition are presented comprising a first circuit and a second circuit. The first circuit may be configured to generate a clock signal in response to (i) a reference signal, (ii) a sequence of spread spectrum ROM codes, and (iii) a command signal. The second circuit may be configured to synchronize the command signal to a feedback signal. The sequence of spread spectrum ROM codes may be generated according to a predetermined mathematical formula and optimized in accordance with predetermined criteria.” (abstract, Sha).

Independent claim 1 recites, in pertinent part:

“A clock board for a redundant clock distribution system ... wherein, when the clock board is operating as a master in a redundant clock distribution system having a master clock board and a slave clock board, the spread spectrum unit is enabled; wherein the clock board is configured to disable the spread spectrum unit when operating as the slave clock board; and wherein the clock board, when operating as the slave clock board, is configured to assume the role of the master responsive to a failure of the master clock board” (Emphasis added).

Independent claim 21 recites a similar combination of features.

In the office action, the Examiner contends that Sha teaches that the spread spectrum unit is turned off when it is not needed. In support of this contention, the Examiner cites Sha in col. 1, lines 59-67, which states, in full:

“If the spread spectrum clock generator could be configured for the spread spectrum modulation to be switched on and off, a system could have reduced EMI while still providing top performance when needed. However, during the transition period when the spread spectrum modulation is switching on or switching off, the frequency can undershoot or overshoot the rated input frequency range of the CPU. When the undershoot or overshoot exceeds the clock input frequency range of the processor, tracking loss and hanging can result.” (Emphasis added).

In the high-availability computer system described in APA, a clock board operating as a secondary (i.e. slave) clock board is configured to take over as the primary clock board if the original primary clock board (i.e. master) fails. APA also teaches that even a momentary interruption in clocking may result in a system crash.

Similarly, independent claim 1 recites “wherein the clock board, when operating as the slave clock board, is configured to assume the role of the master responsive to a failure of the master clock board” while also reciting that “when the clock board is operating as a master ... the spread spectrum unit is enabled” and “wherein the clock board is configured to disable the spread spectrum unit when operating as the slave clock board”.

Accordingly, it follows that when the slave clock board assumes the role of the master, the spread spectrum unit transitions from a disabled state to an enabled state.

However, as noted in the citation above from Sha, the transition period when the spread spectrum unit is switching on or off can result in a clock signal overshooting or undershooting the rated input range of a CPU, which can lead to tracking loss or hanging. Tracking loss or hanging is contrary to the need to prevent interruptions to the operation in accordance with the purpose of providing a high-availability computer system. **Thus, when considering this teaching of Sha, one of ordinary skill in the art would not be motivated to make the proposed combination, as this disclosure teaches away from both the proposed combination as well as the combination of features recited in the independent claims.**

Applicant notes that MPEP 2145(X)(D)(2) states, “[i]t is improper to combine references where the references teach away from their combination.” Applicant submits that in light of Sha’s teaching of the problems associated with switching on or switching off of a spread spectrum unit, that Sha teaches away from the combining of this limitation into a redundant clock system as described by APA.

Applicant further notes that MPEP 2141.02(VI.) states, “A prior art reference must be considered in its entirety, i.e. as a whole, including portions that would lead one away from the claimed invention.” Applicant respectfully submits that when considering Sha as a whole, it includes portions that would lead one away from the independent claims.

Furthermore, in light of Sha’s teachings regarding the problems associated with switching on or switching off of a spread spectrum unit, Applicant submits that **the proposed combination would render APA unsatisfactory for its intended purpose, as it would undermine the stated objective of providing reliable clocking and preventing even momentary interruptions in clocking.**

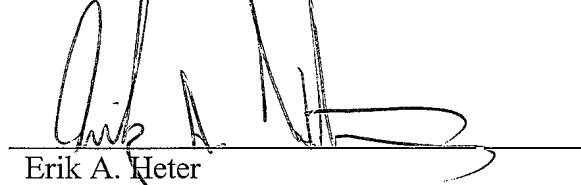
For at least these reasons, Applicant submits that a case of obviousness has not been established. Accordingly, removal of the 35 U.S.C. § 103(a) rejection is respectfully requested.

CONCLUSION

Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5681-72600.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Erik A. Heter', is written over a horizontal line.

Erik A. Heter
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AGENT FOR APPLICANT(S)

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